Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) An integrated multi-chip connector module comprising:

an array of substrate assemblies, wherein each substrate assembly comprises:
a substrate;

one or more ~~integrated circuits~~ semiconductor dice attached to the substrate;

a set of input connector pins, each input connector pin further comprising a first end and a second end, wherein the first end is provided to receive an incoming signal, and the second end is electrically connected to the one or more ~~integrated circuits~~ semiconductor dice on the substrate; and

a set of output connector pins, each output connector pin further comprising a first and a second end, wherein the first end is electrically connected to the one or more ~~integrated circuits~~ semiconductor dice, and the second end is provided for transmitting a processed signal from the one or more ~~integrated circuits~~ semiconductor dice as an output signal to the second end of each output connector pin; and

a connector housing for encasing the array of substrate assemblies, wherein the housing comprises a first set of signal pin apertures through which extend the set of input connector pins to allow external electrical connection to a first external device, and wherein the housing further comprises a second set of signal pin apertures through which extend the set of output connector pins to allow external electrical connection to a second external device, wherein the connector housing further comprises injection-molding a thermally conductive composite around the array of substrate assemblies to fill a plurality of cavities between the array of substrate assemblies, the injection-molded connector housing thereby forming a semiconductor packaging for the one or more semiconductor dice while securing in place the array of substrate assemblies, the one or more semiconductor dice, and the plurality of input and output connector pins.

2. (Original) The integrated multi-chip connector module of Claim 1 wherein each substrate assembly further comprises a set of pin anchoring means, the set of pin anchoring means anchors the input or output connector pins to the substrate assembly.

3. (Original) The integrated multi-chip connector module of Claim 1 wherein the second end of each input or output connector pin terminates in an electrically conductive pad.

4. (Original) The integrated multi-chip connector module of Claim 1 wherein the second end of each input or output connector pin terminates in an electrically conductive cusp.

5. (Original) The integrated multi-chip connector module of Claim 1 wherein the one or more integrated circuits process a set of input signals in a first pinout orientation and redistribute a corresponding set of output signals in a second pinout orientation.

6. (Currently Amended) The integrated multi-chip connector module of Claim 1 wherein the one or more ~~integrated circuits~~ semiconductor dice receive a first set of data signals at a first electrical voltage level and generate in response a set of output signals comprising the first set of data signals at a second electrical voltage level.

7. (Original) The integrated multi-chip connector module of Claim 1 wherein the set of output connector pins are provided to electrically couple to a backplane.

8. (Original) The integrated multi-chip connector module of Claim 1 wherein the set of input connector pins are electrically coupled to an external line card.

9. (Cancel)

10. (Currently Amended) An integrated multi-chip connector module assembly method comprising:

assembling one or more ~~integrated circuits~~ semiconductor dice on a substrate frame;

attaching a plurality of connector pins to each substrate frame and electrically connecting each connector pin to the one or more ~~integrated circuits~~ semiconductor dice on each substrate frame to transmit processed signals from the one or more ~~integrated circuits~~ semiconductor dice;

stacking into an array a plurality of the substrate frames to form an ~~assembly~~ array of substrate frames; and

encasing the stacked array of substrate frames in a connector housing, wherein the step of encasing the stacked array comprises injection molding a thermally conductive composite around the stacked array to eliminate a plurality of cavities between the array of substrates to form a semiconductor packaging around the one or more semiconductor dice and securing in place the stacked array, the one or more semiconductor dice, and the plurality of input and output connector pins.

11. (Cancelled)

12. (Currently Amended) The integrated multi-chip connector module assembly method of Claim ~~9~~ 10 wherein the step of electrically connecting each connector pin to the one or more integrated circuits on each substrate frames comprises wirebonding.

13. (Currently Amended) The integrated multi-chip connector module assembly method of Claim ~~9~~ 10 wherein the step of attaching each connector pin to the one or more integrated circuits on each substrate frames comprises a pin anchoring structure to secure the connector pin to the substrate assembly.